

B. Amendment to the Claims

Please cancel claims 28-39 and 82-85 without prejudice or disclaimer.

Please amend claim 67 and add new claims 86-92 as follows. A listing of all claims in this application is provided.

1. (Cancelled)
2. (Previously Presented) A method of purifying polluted soil which contains a pollutant, comprising the steps of:

heating the polluted soil to make the soil emit a gas containing the pollutant;

passing a gas through functional water to generate a gas containing chlorine;

mixing the pollutant-containing gas and the chlorine-containing gas to form a gaseous mixture; and

irradiating the gaseous mixture with light to decompose the pollutant.
3. (Previously Presented) The method of purifying polluted soil according to claim 2, wherein the heating is conducted using a heater.
4. (Previously Presented) The method of purifying polluted soil according to claim 2, wherein the heating is conducted by mixing the polluted soil with an inorganic compound which reacts exothermically with water.

5. (Original) The method of purifying polluted soil according to claim 4, wherein rolling processing is conducted after mixing the polluted soil with the inorganic compound.

6. (Original) The method of purifying polluted soil according to claim 4, wherein stirring processing is conducted after mixing the polluted soil with the inorganic compound.

7. (Original) The method of purifying polluted soil according to claim 4, wherein the inorganic compound is at least one selected from the group consisting of quick lime, magnesium oxide, barium oxide, strontium oxide, sodium oxide, potassium oxide, and anhydrides of calcium sulfate and magnesium sulfate, respectively.

8. (Original) The method of purifying polluted soil according to claim 4, wherein the water content of the polluted soil is 10 to 30% by weight.

9. (Previously Presented) The method of purifying polluted soil according to claim 2, wherein the functional water is water produced by electrolysis of water containing an electrolyte.

10. (Original) The method of purifying polluted soil according to claim 9, wherein the functional water is acid functional water produced in the vicinity of an anode by the electrolysis of the water containing an electrolyte.

11. (Original) The method of purifying polluted soil according to claim 9, wherein the electrolyte is at least one selected from the group consisting of sodium chloride and potassium chloride.

12. (Previously Presented) The method of purifying polluted soil according to claim 2, wherein the functional water is an aqueous solution containing hypochlorous acid.

13. (Original) The method of purifying polluted soil according to claim 12, wherein the functional water containing hypochlorous acid is a hypochlorite aqueous solution.

14. (Original) The method of purifying polluted soil according to claim 13, wherein the hypochlorite is at least one selected from the group consisting of sodium hypochlorite and potassium hypochlorite.

15. (Original) The method of purifying polluted soil according to claim 12, wherein the functional water further contains an inorganic acid or an organic acid.

16. (Original) The method of purifying polluted soil according to claim 15, wherein the inorganic acid or the organic acid is at least one selected from the group

consisting of hydrochloric acid, hydrofluoric acid, oxalic acid, sulfuric acid, phosphoric acid, boric acid, acetic acid, formic acid, malic acid and citric acid.

17. (Previously Presented) The method of purifying polluted soil according to claim 2, wherein the functional water has a pH of 1 to 4, an oxidation-reduction potential of 800 to 1500 mV, and a chlorine concentration of 5 to 150 mg/l.

18. (Previously Presented) The method of purifying polluted soil according to claim 2, wherein the functional water has a pH of 4 to 10, an oxidation-reduction potential of 300 to 1100 mV, and a chlorine concentration of 2 to 100 mg/l.

19. (Previously Presented) The method of purifying polluted soil according to claim 2, wherein the light comprises a light whose wavelength is in the range of 300 to 500 nm.

20. (Previously Presented) The method of purifying polluted soil according to claim 2, wherein the pollutant is a halogenated aliphatic hydrocarbon.

21. (Original) The method of purifying polluted soil according to claim 20, wherein the halogenated aliphatic hydrocarbon is an aliphatic hydrocarbon compound having at least one selected from the group consisting of chlorine substituent and fluorine substituent.

22. (Original) The method of purifying polluted soil according to claim 21, wherein the halogenated aliphatic hydrocarbon is at least one selected from the group consisting of trichloroethylene, 1,1,1-trichloroethane, tetrachloroethylene, cis-1,2-dichloroethylene, chloroform and dichloromethane.

23. (Previously Presented) The method of purifying polluted soil according to claim 2, further comprising the step of allowing an adsorption material to adsorb the pollutant.

24. (Original) The method of purifying polluted soil according to claim 2, wherein the chlorine concentration of the gaseous mixture is in the range of 5 ppm to 1000 ppm.

25. (Original) The method of purifying polluted soil according to claim 24, wherein the chlorine concentration of the gaseous mixture is in the range of 20 ppm to 500 ppm.

26. (Original) The method of purifying polluted soil according to claim 2, wherein the gas passed through the functional water is the gas containing the pollutant extracted from the polluted soil.

27-55. (Cancelled)

56. (Original) The method of purifying polluted soil according to claim 5, wherein the inorganic compound is at least one selected from the group consisting of quick lime, magnesium oxide, barium oxide, strontium oxide, sodium oxide, potassium oxide, and anhydrides of calcium sulfate and magnesium sulfate, respectively.

57. (Original) The method of purifying polluted soil according to claim 6, wherein the inorganic compound is at least one selected from the group consisting of quick lime, magnesium oxide, barium oxide, strontium oxide, sodium oxide, potassium oxide, and anhydrides of calcium sulfate and magnesium sulfate, respectively.

58. (Original) The method of purifying polluted soil according to claim 10, wherein the electrolyte is at least one selected from the group consisting of sodium chloride and potassium chloride.

59. (Original) The method of purifying polluted soil according to claim 13, wherein the functional water further contains an inorganic acid or an organic acid.

60. (Original) The method of purifying polluted soil according to claim 14, wherein the functional water further contains an inorganic acid or an organic acid.

61-62. (Cancelled)

63. (Previously Presented) The method of purifying polluted soil according to claim 59, wherein the inorganic acid or the organic acid is at least one selected from the group consisting of hydrochloric acid, hydrofluoric acid, oxalic acid, sulfuric acid, phosphoric acid, boric acid, acetic acid, formic acid, malic acid and citric acid.

64. (Previously Presented) The method of purifying polluted soil according to claim 60, wherein the inorganic acid or the organic acid is at least one selected from the group consisting of hydrochloric acid, hydrofluoric acid, oxalic acid, sulfuric acid, phosphoric acid, boric acid, acetic acid, formic acid, malic acid and citric acid.

65. (Previously Presented) A method for purifying polluted soil which contains a pollutant, comprising the steps of:

mixing a gas containing a pollutant emitted by heating polluted soil and a chlorine-containing gas to form a gaseous mixture; and

irradiating the gaseous mixture with light to decompose the pollutant.

66. (Cancelled)

67. (Currently Amended) A method of purifying polluted soil which contains a pollutant, comprising the steps of:

heating the polluted soil to make the soil emit a gas containing the pollutant;

obtaining a mixture of the gas containing the pollutant and chlorine gas; and
irradiating the mixture with light to decompose the pollutant.

68. (Previously Presented) The method according to claim 67, wherein
the heating is conducted using a heater.

69. (Previously Presented) The method according to claim 67, wherein
the heating is conducted by mixing the polluted soil with an inorganic compound which
reacts exothermically with water.

70. (Previously Presented) The method according to claim 69, wherein
rolling processing is conducted after mixing the polluted soil with the inorganic compound.

71. (Previously Presented) The method according to claim 69, wherein
stirring processing is conducted after mixing the polluted soil with the inorganic
compound.

72. (Previously Presented) The method according to claim 69, wherein
the inorganic compound is at least one selected from the group consisting of quick lime,
magnesium oxide, barium oxide, strontium oxide, sodium oxide, potassium oxide, and
anhydrides of calcium sulfate and magnesium sulfate, respectively.

73. (Previously Presented) The method according to claim 69, wherein the water content of the polluted soil is 10 to 30% by weight.

74. (Previously Presented) The method according to claim 67, wherein the light comprises wavelengths from 300 to 500 nm.

75. (Previously Presented) The method according to claim 67, wherein the pollutant is a halogenated aliphatic hydrocarbon.

76. (Previously Presented) The method according to claim 75, wherein the halogenated aliphatic hydrocarbon is an aliphatic hydrocarbon compound having at least one selected from the group consisting of chlorine substituent and fluorine substituent.

76. (Previously Presented) The method according to claim 75, wherein the halogenated aliphatic hydrocarbon is at least one selected from the group consisting of trichloroethylene, 1,1,1-trichloroethane, tetrachloroethylene, cis-1,2-dichloroethylene, chloroform and dichloromethane.

77. (Previously Presented) The method according to claim 67, further comprising the step of allowing an adsorption material to adsorb the pollutant.

78. (Previously Presented) The method according to claim 67, wherein chlorine concentration in the mixture is from 5 ppm to 1000 ppm.

79. (Previously Presented) The method according to claim 78, wherein the chlorine concentration is from 20 ppm to 500 ppm.

80. (Previously Presented) The method according to claim 70, wherein the inorganic compound is at least one selected from the group consisting of quick lime, magnesium oxide, barium oxide, strontium oxide, sodium oxide, potassium oxide, and anhydrides of calcium sulfate and magnesium sulfate, respectively.

81. (Previously Presented) The method according to claim 71, wherein the inorganic compound is at least one selected from the group consisting of quick lime, magnesium oxide, barium oxide, strontium oxide, sodium oxide, potassium oxide, and anhydrides of calcium sulfate and magnesium sulfate, respectively.

82-85. (Cancelled)

86. (New) A method of purifying polluted soil which contains a pollutant, comprising the steps of:

heating the polluted soil to make the soil emit a gas containing the pollutant;

obtaining a mixture of the gas containing the pollutant and chlorine; and

irradiating the mixture with light to decompose the pollutant,
wherein in the heating step the polluted soil is mixed with an inorganic
compound which reacts exothermically with water.

87. (New) The method according to claim 86, wherein rolling
processing is conducted after mixing the polluted soil with the inorganic compound.

88. (New) The method according to claim 86, wherein stirring
processing is conducted after mixing the polluted soil with the inorganic compound.

89. (New) The method according to claim 86, wherein the inorganic
compound is at least one selected from the group consisting of quick lime, magnesium
oxide, barium oxide, strontium oxide, sodium oxide, potassium oxide, and anhydrides of
calcium sulfate and magnesium sulfate, respectively.

90. (New) The method according to claim 86, wherein the water content
of the polluted soil is 10 to 30% by weight.

91. (New) The method according to claim 87, wherein the inorganic
compound is at least one selected from the group consisting of quick lime, magnesium
oxide, barium oxide, strontium oxide, sodium oxide, potassium oxide, and anhydrides of
calcium sulfate and magnesium sulfate, respectively.

92. (New) The method according to claim 88, wherein the inorganic compound is at least one selected from the group consisting of quick lime, magnesium oxide, barium oxide, strontium oxide, sodium oxide, potassium oxide, and anhydrides of calcium sulfate and magnesium sulfate, respectively.